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*Gregory C. Houghton*  
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Gregory C. Houghton

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of :  
Matsumoto, Y. et al. :  
Serial No. 09/652,209 : Group Art Unit: 1621  
Filed: August 30, 2000 : Examiner: Wachtel, Alexis A  
For: REACTOR FOR CATALYTIC :  
GAS PHASE OXIDATION :  
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Commissioner for Patents  
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SIR:

AMENDMENT AND REQUEST FOR RECONSIDERATION

This Reply is submitted pursuant to the Office Action mailed January 12, 2004, to which a Reply is due April 12, 2004. Reconsideration of the present rejections and withdrawal of the present rejections are respectfully requested. Claims 1-19 are under consideration.

the shell, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

6. (Currently amended) A reactor according to claim 3, wherein ~~a difference in the number of reaction tubes configured in the regions of reaction tubes divided by at least two circulation passages~~ a value calculated by | (Number of reaction tubes in individual regions) / (average number of reaction tubes in the regions) - 1| x 100 is within 3%.

7. (Currently amended) A reactor according to claim 4, wherein ~~a difference in the number of reaction tubes configured in the regions of reaction tubes divided by at least two circulation passages~~ a value calculated by | (Number of reaction tubes in individual regions) / (average number of reaction tubes in the regions) - 1| x 100 is within 3%.

8. (Original) A reactor according to claim 4, wherein a cross-sectional area of the circulation passage is in the range of 0.5 – 5% based on the cross-sectional area of the shell.

9. (Original) A reactor according to claim 5, further comprising at least one circulation passage for the heating medium between an empty space devoid of a configuration of reaction tubes in the center of the shell and the peripheral part of the shell.

10. (Original) A reactor according to claim 7, wherein a cross sectional area of the empty space is in the range of 0.5 – 5% of the cross sectional area of the shell, a cross sectional area of the disc type baffle plates in the range of 50 – 95% of the cross sectional area of the reactor, and a cross sectional area of holes in the donut type baffle plates in the range of 2 – 25% of the cross sectional area of the shell.

11. (Original) A reactor according to claim 1 further comprising at least two of circulation conduits for supplying or withdrawing the heating medium to or from the shell.

12. Cancelled.

13. (Currently amended) ~~A reactor according to claim 1, wherein the circulation conduit further has~~ A shell-and-tube type reactor comprising:

a cylindrical shell having disposed on the periphery thereof a plurality of annular conduits for guiding a heating medium in or out in the radial direction and having a raw material inlet and a product outlet;

a circulation device for mutually connecting a plurality of annular conduits;

a plurality of reaction tubes constrained to the reactor by a plurality of tube sheets;